



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development
Standard Energy Code Proposal FormLog No. **198 TAG Rev 06/04/21**Code being amended: ☒ Commercial Provisions ☐ Residential ProvisionsCode Section # C405.5.3

Brief Description:

Reduces exterior lighting values (last updated in 2016) in response to changes in technology

Proposed code change text: (Copy the existing text from the Integrated Draft, linked above, and then use underline for new text and ~~strikeout~~ for text to be deleted.)

	Lighting Zones			
	Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance	<u>160</u> 350 W	<u>280</u> 400 W	<u>400</u> 500 W	<u>560</u> 900 W
Uncovered Parking Areas				
Parking Areas and Drives	<u>0.015</u> 0.03 W/ft ²	<u>0.026</u> 0.04 W/ft ²	<u>0.037</u> 0.06 W/ft ²	<u>0.052</u> 0.08 W/ft ²
Building Grounds				
Walkways and ramps less than 10 feet wide	<u>0.5</u> W/linear foot <u>0.04</u> W/ft ²	<u>0.5</u> W/linear foot <u>0.07</u> W/ft ²	<u>0.6</u> W/linear foot <u>0.10</u> W/ft ²	<u>0.7</u> W/linear foot <u>0.14</u> W/ft ²
Walkways and ramps 10 feet wide or greater, plaza areas, special feature areas	<u>0.04</u> 0.10 W/ft ²	<u>0.07</u> 0.10 W/ft ²	<u>0.10</u> 0.11 W/ft ²	<u>0.14</u> 0.14 W/ft ²
Dining Areas	<u>0.156</u> 0.65 W/ft ²	<u>0.273</u> 0.65 W/ft ²	<u>0.390</u> 0.75 W/ft ²	<u>0.546</u> 0.95 W/ft ²
Stairways	<u>0.6</u> W/ft² Exempt	<u>0.7</u> W/ft² Exempt	<u>0.7</u> W/ft² Exempt	<u>0.7</u> W/ft² Exempt
Pedestrian tunnels	<u>0.063</u> 0.12 W/ft ²	<u>0.110</u> 0.12 W/ft ²	<u>0.157</u> 0.14 W/ft ²	<u>0.21</u> 0.220 W/ft ²
Landscaping	<u>0.014</u> 0.03 W/ft ²	<u>0.025</u> 0.04 W/ft ²	<u>0.036</u> 0.04 W/ft ²	<u>0.050</u> 0.04 W/ft ²
Building Entrances and Exits				
Pedestrian and vehicular entrances and exits	<u>5.6</u> 14 W/linear foot	<u>9.8</u> 14 W/linear foot	<u>14.0</u> 21 W/linear foot	<u>19.6</u> 21 W/linear foot
Entry canopies	<u>0.072</u> 0.2 W/ft ²	<u>0.126</u> 0.25 W/ft ²	<u>0.180</u> 0.4 W/ft ²	<u>0.252</u> 0.4 W/ft ²
Loading docks	<u>0.104</u> 0.35 W/ft ²	<u>0.182</u> 0.35 W/ft ²	<u>0.260</u> 0.35 W/ft ²	<u>0.364</u> 0.35 W/ft ²
Sales Canopies				

Free-standing and attached	<u>0.20</u> 0.4 W/ft ²	<u>0.35</u> 0.4 W/ft ²	<u>0.50</u> 0.6 W/ft ²	<u>0.70</u> W/ft ²
Outdoor Sales				
Open areas (including vehicle sales lots)	<u>0.072</u> 0.2 W/ft ²	<u>0.126</u> 0.2 W/ft ²	<u>0.180</u> 0.35 W/ft ²	<u>0.252</u> 0.5 W/ft ²
Street frontage for vehicle sales lots in addition to "open area" allowance	No allowance	<u>7.2</u> W/linear foot	<u>10.3</u> 7 W/linear foot	<u>14.4</u> 24 W/linear foot

For SI: 1 foot = 304.8 mm, ~~1 watt per square foot = W/0.0929 m²~~, 1 watt per square foot = 10.76 watts per square meter.

	Lighting Zones			
	Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance	No allowance	0.075 W/ft ² of gross above-grade wall area	0.113 W/ft ² of gross above-grade wall area	0.150 W/ft ² of gross above-grade wall area
Automated teller machines (ATM) and night depositories	<u>80</u> 135 W per location plus <u>25</u> 45 per additional ATM	<u>80</u> 135 W per location plus <u>25</u> 45 per additional ATM	<u>80</u> 135 W per location plus <u>25</u> 45 per additional ATM	<u>80</u> 135 W per location plus <u>25</u> 45 per additional ATM
Uncovered entrances and gatehouse inspection stations at guarded facilities	<u>0.144</u> 0.5 W/ft ²	<u>0.252</u> 0.5 W/ft ²	<u>0.360</u> 0.5 W/ft ²	<u>0.504</u> W/ft ²
Uncovered loading areas for law enforcement, fire, ambulance and other emergency service vehicles	<u>0.104</u> 0.35 W/ft ²	<u>0.182</u> 0.35 W/ft ²	<u>0.260</u> 0.35 W/ft ²	<u>0.364</u> 0.35 W/ft ²
Drive-up windows/ doors	<u>53</u> 200 W per drive through	<u>92</u> 200 W per drive through	<u>132</u> 200 W per drive through	<u>185</u> 200 W per drive through
Parking near 24-hour retail entrances	<u>80</u> 400 W per main entry	<u>140</u> 400 W per main entry	<u>200</u> 400 W per main entry	<u>280</u> 400 W per main entry

For SI: 1 foot = 304.8 mm; 1 watt per square foot = 10.76 watts per square meter.

Purpose of code change:

- Changes from footprint to gross floor area. If footprint, doesn't that require the 100,000 ft² to be on the first floor when this is more geared towards overall building area (e.g., gross floor area)?

Your amendment must meet one of the following criteria. Select at least one:

- ☐ Addresses a critical life/safety need.
- ☐ The amendment clarifies the intent or application of the code.
- ☒ Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)
- ☐ Consistency with state or federal regulations.
- ☐ Addresses a unique character of the state.
- ☐ Corrects errors and omissions.

Check the building types that would be impacted by your code change:



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- | | | |
|--|--|---|
| <input type="checkbox"/> Single family/duplex/townhome | <input checked="" type="checkbox"/> Multi-family 4 + stories | <input checked="" type="checkbox"/> Institutional |
| <input checked="" type="checkbox"/> Multi-family 1 – 3 stories | <input checked="" type="checkbox"/> Commercial / Retail | <input checked="" type="checkbox"/> Industrial |

Your name	Michael Myer	Email address	Michael.myer@pnnl.gov
Your organization	Pacific NW Ntl Laboratory	Phone number	509-375-7292
Other contact name	Mike Rosenberg		

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@des.wa.gov. For further information, call the State Building Code Council at 360-407-9278.

Economic Impact Data Sheet

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants and businesses.

Limited economic impact on building owners, tenants, and business. The values in the table have not been updated since 2016. As of 2016, LED technology was relatively new, and the efficacy was around 82 lm/W. As of 2021, exterior LEDs are easily 105 lm/W and many exceed 120 lm/W. In 2016, light loss factors for LEDs were somewhat an unknown. As of 2021, the lighting industry's knowledge is deeper and different light loss factors are used now. These values are change in available lighting technology as well as informed design practices.

These values are slightly greater than California's Title 24 which had an economic analysis and were deemed cost effective. These values are similar to a draft addendum of ANSI/ASHRAE/IES Standard 90.1. BC Hydro funded some cost analysis for the 90.1 proposal. Other than exchange rate, the cost of lighting equipment in Canada and US is the same. BC Hydro's lighting subcontractor provided a cost analysis and cost data of the 90.1 addendum indicating that 2021 is equipment is similar cost of 2016 equipment, but the efficacy had an increased over the period of time.

This proposal is similar to other energy code changes that involved cost analyses and those cost requirements were met.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost [Analysis tool](#) and [Instructions](#); use these [Inputs](#). **Webinars on the tool can be found [Here](#) and [Here](#)**)

\$0/square foot (For residential projects, also provide \$[Click here to enter text.](#)/ dwelling unit)

[Show calculations here, and list sources for costs/savings, or attach backup data pages](#)

This is a change in value in response to newer technology. The incumbent technology is more efficient than the last time the value was updated.

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

0.08 kWh/ square foot (or) [Click here to enter text.](#)KBTU/ square foot

(For residential projects, also provide [Click here to enter text.](#)KWH/KBTU / dwelling unit)

[Show calculations here, and list sources for energy savings estimates, or attach backup data pages](#)

- Assumed at 30,000 square foot parking lot. The LPD reduced is reduced by 40% between the existing (0.06 W/ft²) and new value (0.037 W/ft²). The values in the table are roughly a 40% reduction across the board. Assumes 2,230 kWh saved. 2,230 kWh / 30,000 = 0.076 kWh / ft².

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

No change in enforcement, just revised values.

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.